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**ASSIGNED TO**

**FOR**

# SYSTEM AND METHOD FOR TARGETED ADVERTISING

## SYSTEM AND METHOD FOR TARGETED ADVERTISING

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

The present invention relates generally to broadcast advertising, and more particularly, to broadcast advertisements transmitted to a communication device and selected based on acceptance data stored on the communication device.

#### 2. Related Art

Increasingly, advertising has been used to reach users of computer devices. For example, users of mobile communication devices have been targeted for receiving ads. As a result, these devices may be bombarded with blanket advertising. Mobile communication devices generally have limited data storage capacity that may be burdened by large numbers of ads. Further, mobile communication devices typically have limited output capability, making it difficult for a user to view and select ads of interest from a large number of received ads.

Advertising is more effective when targeted to certain individuals, *e.g.*, those known to have an interest in the advertised goods or services. Advertisers prefer to tailor advertising to a particular individual or group, such as direct mailings to people in a certain demographic or geographic area, or wireless transmissions to individuals fitting certain profiles known to the advertiser. The demographic or other data used for such advertising may be costly if purchased from an outside supplier. This approach also raises privacy issues with individuals who may wish to remain anonymous or to limit distribution of their identity.

A need therefore exists for a method of receiving advertisements in a less intrusive and more convenient way, while retaining the privacy of the individuals most likely to find the advertisements useful.

### SUMMARY OF THE INVENTION

The present invention solves the above problems by providing an improved system and method for broadcast advertising to a mobile communication device.

5        In one aspect of the present invention, a mobile communication device receives a broadcast advertisement and selects that advertisement based on stored user profile or acceptance data, thereby providing broadcast advertising that is filtered by the communication device. If the communication device selects the advertisement, the advertisement may be displayed or stored.

10        In another aspect of the present invention, a system for broadcast advertising includes a mobile communication device, which is capable of storing acceptance data, and an advertisement broadcasting system or source, which is capable of transmitting broadcast advertisements to the mobile communication device. The mobile communication device is further capable of receiving the broadcast advertisements from the advertisement  
15        broadcasting source and selecting at least one of the advertisements based on the stored acceptance data.

Further features and advantages of the invention as well as the structure and operation of various embodiments of the invention are described in detail below with reference to the accompanying drawings.

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### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic diagram showing a system including a mobile communication device and advertisement broadcasting sources in accordance with a preferred embodiment of the present invention.

FIG. 2 is a schematic diagram showing one embodiment of a mobile communication device.

FIG. 3 is a schematic diagram illustrating one embodiment wherein a mobile communication device is used in a tradeshow hall.

5        FIG. 4 is a flowchart showing a method for broadcast advertising to a mobile communication device in accordance with a preferred embodiment of the present invention.

FIG. 5 is a flowchart illustrating one embodiment of a method for generating acceptance data to be stored on a mobile communication device and used in selecting broadcast advertisements.

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#### DETAILED DESCRIPTION OF THE INVENTION

Generally, advertisements are available in a number of convenient formats, *e.g.*, full-screen, banner, or screen-saver. A broadcast advertisement is a particular form of advertisement which is sent over a communication medium and is accessible to two or more communications devices simultaneously. Embodiments of the present invention are directed to a method and a system for broadcast advertising to a mobile communication device in which the communication device selects certain advertisements from a variety of broadcast advertisements in accordance with user profile or acceptance data stored on the communication device.

20        FIG. 1 illustrates a system for broadcast advertising in accordance with a preferred embodiment of the present invention. The system includes a mobile communication device 100 and advertisement broadcasting systems or sources ("ad sources") 102 and 104. Each ad source 102 or 104 is a source or transmitter of broadcast advertisements. The ad source 102

or 104 may be a billboard, a storefront (*e.g.*, a store having frontage on a street, mall, or thoroughfare), or any other wireless transmitter.

The mobile communication device 100 is any computing device that is mobile and capable of receiving broadcast advertisements. The mobile device 100 may be a handheld  
5 computer (*e.g.*, PalmPilot), a personal digital assistant ("PDA"), a cellular telephone, a 2-way pager, an in-car computer, or the like. Such a mobile device 100 is generally accessible anywhere, *e.g.*, in a pocket, bag, or vehicle.

FIG. 2 shows one embodiment of a mobile communication device 200. The communication device 200 includes a CPU 240, memory 250, an input signal 220, an output  
10 signal 225, and a display 260. The output signal 255 may be any audio, vibration, digital, or other signal that is detectable by a user or any other suitable signal target. The communication device 200 also includes any suitable operating system and user interface installed thereon (not shown), including but not limited to, Windows (*e.g.*, 95/98, NT, CE), Linux, and/or Palm OS.

15 The communication device 200 is able to communicate with an advertisement broadcasting system or source 202 through a communication channel 212. The communication device 200 may or may not be within a broadcast range of the communication channel 212, depending on the position of the communication device 200. The communication device 200 is also able to communicate with GPS 230 via a  
20 communication channel 242. Further, the communication device 200 is able to communicate with other wireless servers 206 via a communication channel 208. The wireless servers 206 may be Web servers, mobile phone service servers, or other broadcast advertisement sources.

Referring back to FIG. 1, the mobile device 100 has a wireless transmission module 150, which is capable of wirelessly sending and receiving data. The ad sources 102 and 104

also have wireless transmission modules 152 and 154, respectively, which are capable of wirelessly sending and receiving data. The ad source 102 transmits broadcast advertisements to the mobile device 100 via a wireless channel 120, and the ad sources 104 transmits broadcast advertisements to the mobile device 100 via a wireless channel 125. Once the  
5 mobile device 100 is within a broadcast range of the ad source 102 or 104, the mobile device 100 is able to receive broadcast advertisements from the ad source 102 or 104. For example, the mobile device 100 may be configured to receive broadcast advertisements that are transmitted from a limited distance or that are above a threshold signal strength.

In the illustrated embodiment, the system for broadcast advertising further includes a  
10 Global Positioning System (“GPS”) 130. The GPS includes a wireless transmission module 156, which is capable of emitting signals via a wireless channel 142. In one embodiment, the mobile device 100 is configured to obtain its position from the GPS 130 via the wireless channel 142. The mobile device 100 is then able to obtain driving directions for reaching the ad sources 102 and 104, if desired. In alternative embodiments, the mobile device 100 may  
15 send an indicator signal to the ad source 102 or 104. Such an indicator signal may send information about the position of the mobile device 100 directly to the ad source 102 or 104 via the wireless channel 120 or 125. The ad source 102 or 104 may then use the information received about the position of the mobile device 100 to toggle on and off transmission of broadcast advertisements to the mobile device 100. When the ad source 102 or 104 detects  
20 that the mobile device 100 is within its broadcast range, the ad source 102 or 104 proceeds to transmit broadcast advertisements to the mobile device 100. In further alternative embodiments, wireless positioning systems other than GPS, which are able to identify the location of the mobile device 100 relative to the ad source 102 or 104, may be utilized.

In preferred embodiments, the ad source 102 or 104 transmits, and the mobile device 100 receives, broadcast advertisements through a wireless communication channel. The advertisements may be broadcast through embedded signals in radio or television transmissions, Bluetooth or infrared signals, other radio frequency ("RF") signals, or any other wireless means. The advertisements may also be broadcast via any appropriate protocol, including but not limited to, infrared protocols (such as the Infrared Data Association ("IrDA") specification and the Advanced Infrared ("Air") specification), the IEEE standard 802.11, the European Telecommunications Standards Institute ("ET-SI") standard HIPERLAN, and the HomeRF Shared Wireless Access Protocol ("SWAP").

Further, the advertisements may be transmitted via distributed systems, including but not limited to, local area networks ("LANs"), wide area networks ("WANs"), the World Wide Web ("Web"), and personal LANs (such as MIT's personal area network ("PAN") and GTE Corporation's Body LAN based on short-range RF signals).

FIG. 4 is a flowchart showing a method for broadcast advertising to a mobile communication device in accordance with a preferred embodiment of the present invention. In preferred embodiments, the mobile device 100 receives broadcast advertisements from the ad source 102 or 104 and selects certain advertisements in accordance with user profile or acceptance data stored on the mobile device 100.

Upon receiving a broadcast advertisement in step 401, the mobile device 100 proceeds to compare advertisement data with stored acceptance data in step 410. The advertisement data is data contained in and extractable from the broadcast advertisements. The advertisement data is derived from the ad source 102 or 104, and may include but is not limited to, the name of a company or brand, information about products and/or services, price

information, deadlines for special offers, or any other information that may be useful for filtering through or selecting certain broadcast advertisements.

The user profile or acceptance data is stored on the mobile device 100 and is derived from a user of the mobile device 100. The acceptance data serves as criteria for accepting or selecting broadcast advertisements received from the ad source 102 or 104. The acceptance data may include, but is not limited to, company and/or brand names, information about products and/or services, price information and/or price thresholds, or any other information that may be useful for filtering through or selecting certain broadcast advertisements. To filter through or select particular broadcast advertisements, the user configures the mobile device 100 with acceptance data to accept specified types of broadcast advertisements, for example, from specific companies or with specific attributes such as a minimum percentage off or a specific brand of item, and/or to reject other types of broadcast advertisements.

Once the communication device 100 compares the advertisement data with the acceptance data to obtain a comparison result in step 410, the comparison result is checked at step 415. The comparison result is determined to be satisfactory only if there is an exact match between the advertisement data and the acceptance data, or alternatively, may be based on a less strict standard. Any known methods used by search engines for matching search criteria with comparison data in search targets may be readily utilized to determine whether the comparison result is satisfactory.

If the comparison result is not satisfactory, the mobile device 100 rejects the broadcast advertisement in step 417. However, if the comparison result is satisfactory, then the mobile device 100 stores the broadcast advertisement on the mobile device 100 in step 420. In alternative embodiments, the mobile device 100 may simply display the broadcast advertisement to the user of the mobile device 100 without storing the advertisement. At step



425, a notification signal is then sent to the user of the mobile device 100. With respect to rejected broadcast advertisements, the mobile device 100 may immediately delete them, mark them for future deletion, or store them being marked as rejected.

In one embodiment, after storing the accepted broadcast advertisements, the user may subsequently browse through the stored advertisements in the mobile device 100 as desired, *e.g.*, when the user is ready to go shopping. The stored advertisements may be viewed by any method available within the operating system of the mobile device 100. Further, the mobile device 100 may subsequently purge the stored advertisements, for example, on a weekly basis or based on an expiration date embedded in the advertisement.

In preferred embodiments, the communication device may be set up and modified in any convenient way to store suitable acceptance data. FIG. 5 is a flowchart illustrating one embodiment of a method for generating acceptance data used in filtering through or selecting broadcast advertisements. The user is prompted in step 510 to directly enter data to be used for constructing acceptance data. The user may manually enter the data, select the data from a predetermined list, select the data from templates, or the like. The data may be keywords or natural language text. The entered data is parsed in step 515, and the acceptance data is created in step 535.

Alternatively, the acceptance data in the mobile device 100 may be modified based on entries in the user's personal information manager ("PIM"). Examples of PIMs include any software capable of organizing personal information, including but not limited to, Microsoft Outlook, Lotus Organizer, Starfish Sidekick, or Franklin Planner. The acceptance data in the mobile device 100 may be modified based on entries in the user's PIM, such as calendar entries, task or to-do lists, reminders, and notes. For example, the text from a PIM entry may be extracted and used to create acceptance data.

In step 520, new data is entered in the PIM. Next, the new PIM data is parsed in step 525. Finally, the parsed PIM data is used to create acceptance data in step 535. For example, a user's PIM may have an upcoming entry for "Dad's Birthday" in the calendar. This entry creates acceptance data in the mobile device 100, and then the mobile device 100 accepts broadcast advertisements for items that would be appropriate for such an event. Or, the user's PIM may have an item "buy skim milk" in the task or to-do list. A grocery store may be broadcasting a list of items on sale, one of which is skim milk. As the user drives past this store, the mobile device 100 accepts the broadcast advertisement and notifies the user that the particular store has skim milk on sale. A person of skill in the art could readily develop the software needed to create and modify such functionality.

The parsing steps 515 and 525 may be fixed or customizable by the user. Any appropriate process may be used to create acceptance data from manually entered text or PIM entries, such as processes used by search engines to parse text entered as a query by a user. Additionally, the acceptance data obtained in step 535 may be modified by the user, *e.g.*, using a suitable editor.

FIG. 3 shows one embodiment of the invention in which a mobile device 300 is used in a tradeshow hall 310. The tradeshow hall 310 includes a plurality of booths 320 at different locations. Each booth 320 is equipped with a wireless transmitter 330 that emits broadcast advertisements describing products or services (or any other desired information) and the location of the booth 320. A user carrying the mobile device 300 walks through the tradeshow hall 310 among the booths 320. The mobile device 300 may be configured to contain acceptance data for filtering broadcast advertisements transmitted from the various booths 320. The mobile device 300 may also be configured to only receive broadcast advertisements from booths 320 in the immediate vicinity of the mobile device 300 and/or

1972-1973 1973-1974 1974-1975 1975-1976 1976-1977 1977-1978 1978-1979 1979-1980 1980-1981 1981-1982 1982-1983 1983-1984 1984-1985 1985-1986 1986-1987 1987-1988 1988-1989 1989-1990 1990-1991 1991-1992 1992-1993 1993-1994 1994-1995 1995-1996 1996-1997 1997-1998 1998-1999 1999-2000 2000-2001 2001-2002 2002-2003 2003-2004 2004-2005 2005-2006 2006-2007 2007-2008 2008-2009 2009-2010 2010-2011 2011-2012 2012-2013 2013-2014 2014-2015 2015-2016 2016-2017 2017-2018 2018-2019 2019-2020 2020-2021 2021-2022 2022-2023 2023-2024 2024-2025 2025-2026 2026-2027 2027-2028 2028-2029 2029-2030 2030-2031 2031-2032 2032-2033 2033-2034 2034-2035 2035-2036 2036-2037 2037-2038 2038-2039 2039-2040 2040-2041 2041-2042 2042-2043 2043-2044 2044-2045 2045-2046 2046-2047 2047-2048 2048-2049 2049-2050 2050-2051 2051-2052 2052-2053 2053-2054 2054-2055 2055-2056 2056-2057 2057-2058 2058-2059 2059-2060 2060-2061 2061-2062 2062-2063 2063-2064 2064-2065 2065-2066 2066-2067 2067-2068 2068-2069 2069-2070 2070-2071 2071-2072 2072-2073 2073-2074 2074-2075 2075-2076 2076-2077 2077-2078 2078-2079 2079-2080 2080-2081 2081-2082 2082-2083 2083-2084 2084-2085 2085-2086 2086-2087 2087-2088 2088-2089 2089-2090 2090-2091 2091-2092 2092-2093 2093-2094 2094-2095 2095-2096 2096-2097 2097-2098 2098-2099 2099-2100 2100-2101 2101-2102 2102-2103 2103-2104 2104-2105 2105-2106 2106-2107 2107-2108 2108-2109 2109-2110 2110-2111 2111-2112 2112-2113 2113-2114 2114-2115 2115-2116 2116-2117 2117-2118 2118-2119 2119-2120 2120-2121 2121-2122 2122-2123 2123-2124 2124-2125 2125-2126 2126-2127 2127-2128 2128-2129 2129-2130 2130-2131 2131-2132 2132-2133 2133-2134 2134-2135 2135-2136 2136-2137 2137-2138 2138-2139 2139-2140 2140-2141 2141-2142 2142-2143 2143-2144 2144-2145 2145-2146 2146-2147 2147-2148 2148-2149 2149-2150 2150-2151 2151-2152 2152-2153 2153-2154 2154-2155 2155-2156 2156-2157 2157-2158 2158-2159 2159-2160 2160-2161 2161-2162 2162-2163 2163-2164 2164-2165 2165-2166 2166-2167 2167-2168 2168-2169 2169-2170 2170-2171 2171-2172 2172-2173 2173-2174 2174-2175 2175-2176 2176-2177 2177-2178 2178-2179 2179-2180 2180-2181 2181-2182 2182-2183 2183-2184 2184-2185 2185-2186 2186-2187 2187-2188 2188-2189 2189-2190 2190-2191 2191-2192 2192-2193 2193-2194 2194-2195 2195-2196 2196-2197 2197-2198 2198-2199 2199-2200 2200-2201 2201-2202 2202-2203 2203-2204 2204-2205 2205-2206 2206-2207 2207-2208 2208-2209 2209-2210 2210-2211 2211-2212 2212-2213 2213-2214 2214-2215 2215-2216 2216-2217 2217-2218 2218-2219 2219-2220 2220-2221 2221-2222 2222-2223 2223-2224 2224-2225 2225-2226 2226-2227 2227-2228 2228-2229 2229-2230 2230-2231 2231-2232 2232-2233 2233-2234 2234-2235 2235-2236 2236-2237 2237-2238 2238-2239 2239-2240 2240-2241 2241-2242 2242-2243 2243-2244 2244-2245 2245-2246 2246-2247 2247-2248 2248-2249 2249-2250 2250-2251 2251-2252 2252-2253 2253-2254 2254-2255 2255-2256 2256-2257 2257-2258 2258-2259 2259-2260 2260-2261 2261-2262 2262-2263 2263-2264 2264-2265 2265-2266 2266-2267 2267-2268 2268-2269 2269-2270 2270-2271 2271-2272 2272-2273 2273-2274 2274-2275 2275-2276 2276-2277 2277-2278 2278-2279 2279-2280 2280-2281 2281-2282 2282-2283 2283-2284 2284-2285 2285-2286 2286-2287 2287-2288 2288-2289 2289-2290 2290-2291 2291-2292 2292-2293 2293-2294 2294-2295 2295-2296 2296-2297 2297-2298 2298-2299 2299-2300 2300-2301 2301-2302 2302-2303 2303-2304 2304-2305 2305-2306 2306-2307 2307-2308 2308-2309 2309-2310 2310-2311 2311-2312 2312-2313 2313-2314 2314-2315 2315-2316 2316-2317 2317-2318 2318-2319 2319-2320 2320-2321 2321-2322 2322-2323 2323-2324 2324-2325 2325-2326 2326-2327 2327-2328 2328-2329 2329-2330 2330-2331 2331-2332 2332-2333 2333-2334 2334-2335 2335-2336 2336-2337 2337-2338 2338-2339 2339-2340 2340-2341 2341-2342 2342-2343 2343-2344 2344-2345 2345-2346 2346-2347 2347-2348 2348-2349 2349-2350 2350-2351 2351-2352 2352-2353 2353-2354 2354-2355 2355-2356 2356-2357 2357-2358 2358-2359 2359-2360 2360-2361 2361-2362 2362-2363 2363-2364 2364-2365 2365-2366 2366-2367 2367-2368 2368-2369 2369-2370 2370-2371 2371-2372 2372-2373 2373-2374 2374-2375 2375-2376 2376-2377 2377-2378 2378-2379 2379-2380 2380-2381 2

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